

WHAT IS CLAIMED IS:

1. A remote operation system for remotely operating a device to be operated through a communication network from an operation side terminal, comprising:

screen analysis means for analyzing information displayed on a screen of said device to be operated, and  
screen information transmission means for transmitting data of an analysis result obtained by said screen analysis means to said operation side terminal to display the data on said operation side terminal.

10 2. The remote operation system as set forth in claim 1, further comprising

operation execution means for causing said device to be operated to execute predetermined processing corresponding to user's operation conducted using said operation side terminal.

5 3. The remote operation system as set forth in claim 1, further comprising

screen information conversion means for converting data of an analysis result obtained by said screen analysis means into data suitable for the transmission to said operation side terminal or for displaying on a screen of said operation side terminal, wherein

10           said screen information transmission means  
transmits data of a result of conversion by said screen  
information conversion means to said operation side  
terminal to display the data on said operation side  
terminal.

4.         The remote operation system as set forth in claim  
3, further comprising

5           conversion rule registration means for  
registering and recording rules for converting data of  
an analysis result obtained by said screen analysis  
means into data suitable for the transmission to said  
operation side terminal or for displaying on the screen  
of said operation side terminal, wherein

10          said screen information conversion means converts  
data of an analysis result obtained by said screen  
analysis means based on the conversion rules recorded in  
said conversion rule registration means.

5         The remote operation system as set forth in claim  
3, further comprising

device characteristic detection means for  
detecting device characteristics of said operation side  
terminal, wherein

5           said screen information conversion means converts  
data of an analysis result obtained by said screen  
analysis means based on device characteristics detected

10 by said device characteristic detection means and conversion rules recorded in said conversion rule registration means.

6. The remote operation system as set forth in claim 1, further comprising

5 screen change detection means for detecting a change in display of the screen of said device to be operated, wherein

10 at a time when a change occurred in display of the screen is completed, said screen analysis means analyzes the current screen of said device to be operated.

7. The remote operation system as set forth in claim 1, wherein

5 said device to be operated is an information processing device having a GUI, and

5 said screen analysis means detects GUI widgets displayed on the screen of said device to be operated to obtain attribute data of said GUI widgets.

8. The remote operation system as set forth in claim 7, wherein

5 the attribute data of said GUI widgets includes at least one of a kind of said GUI widgets, a name of said GUI widgets and a location of said GUI widgets in

the screen.

9. The remote operation system as set forth in claim  
7, wherein

    said conversion rule registration means has  
    registration of rules for converting data of an analysis  
5     result obtained by said screen analysis means into a web  
    page that can be displayed by a web browser,

    said screen information conversion means converts  
    data of an analysis result obtained by said screen  
    analysis means into a web page based on said rules,

10     said web page includes, for GUI widgets operable  
    by a user among GUI widgets detected by said screen  
    analysis means, a hyper-link corresponding to the GUI  
    widgets in question, and

15     when said hyper-link is selected, data for  
    identifying GUI widgets corresponding to the hyper-link  
    in question and data for identifying operation for the  
    GUI widgets in question are transmitted to said  
    operation execution means.

10. The remote operation system as set forth in claim  
1, wherein

    said conversion rule registration means has  
    registration of rules for converting data of an analysis  
5     result obtained by said screen analysis means into a  
    text of electronic mail.

11. The remote operation system as set forth in claim  
10, wherein

5 said operation execution means receives  
electronic mail including information of user's  
operation conducted using said operation side terminal,  
analyzes the received electronic mail to identify the  
user's operation, and executes the operation in question.

12. The remote operation system as set forth in claim  
1, wherein

5 data of an analysis result obtained by said  
screen analysis means is data of an XML format.

13. The remote operation system as set forth in claim  
1, wherein

5 said operation side terminal is a portable  
communication terminal having a character data  
transmission and reception function.

14. The remote operation system as set forth in claim  
1, wherein

5 said communication network is the Internet.

15. The remote operation system as set forth in claim  
1, wherein

5 said screen analysis means, when moving picture

5        or still picture is displayed on the screen of said  
device to be operated, detects the display in question  
to extract picture data of the display in question, and  
said screen information transmission means  
transmits said picture data extracted by said screen  
analysis means to said operation side terminal to  
10      display the data on said operation side terminal.

16.     The remote operation system as set forth in claim  
1, wherein

5        said screen analysis means, when moving picture  
or still picture is displayed on the screen of said  
device to be operated, detects the display in question  
to extract picture data of the display in question, and  
said screen information conversion means converts  
said picture data extracted by said screen analysis  
means into data suitable for the transmission to said  
10      operation side terminal or for displaying on the screen  
of said operation side terminal.

17.     The remote operation system as set forth in claim  
5, wherein

5        device characteristics of said operation side  
terminal detected by said device characteristic  
detection means include at least one of an inherent ID  
of said operation side terminal, a kind of machine, a  
processing rate, a communication rate, communication

costs per unit volume of data, communication costs per  
unit time, a data format that can be displayed on a  
10 screen, a playable sound data format, executable program  
and script formats, a volume of data receivable at one  
time, a color that can be displayed, a character font  
that can be displayed, a screen resolution, a physical  
length of a screen in a vertical direction and a lateral  
15 direction and the number of characters that can be  
displayed within one screen in the vertical direction  
and the lateral direction.

18. A remote operation system for remotely operating  
a device to be operated through a communication network  
from an operation side terminal, wherein

said device to be operated comprises:

5 screen analysis means for analyzing the contents  
displayed on a screen of said device to be operated, and  
screen information transmission means for  
transmitting data of an analysis result obtained by said  
screen analysis means to said operation side terminal to  
10 display the data on said operation side terminal.

19. The remote operation system as set forth in claim  
18, further comprising

5 operation execution means for causing said device  
to be operated to execute predetermined processing  
corresponding to user's operation conducted using said

operation side terminal.

20. The remote operation system as set forth in claim 18, further comprising

screen information conversion means for converting data of an analysis result obtained by said screen analysis means into data suitable for the transmission to said operation side terminal or for displaying on a screen of said operation side terminal, wherein

said screen information transmission means transmits data of a result of conversion by said screen information conversion means to said operation side terminal to display the data on said operation side terminal.

21. The remote operation system as set forth in claim 20, further comprising

conversion rule registration means for registering and recording rules for converting data of an analysis result obtained by said screen analysis means into data suitable for the transmission to said operation side terminal or for displaying on the screen of said operation side terminal, wherein

said screen information conversion means converts data of an analysis result obtained by said screen analysis means based on the conversion rules recorded in

said conversion rule registration means.

22. The remote operation system as set forth in claim 20, further comprising

device characteristic detection means for detecting device characteristics of said operation side terminal, wherein

5  
said screen information conversion means converts data of an analysis result obtained by said screen analysis means based on device characteristics detected by said device characteristic detection means and conversion rules recorded in said conversion rule registration means.

10  
23. The remote operation system as set forth in claim 18, further comprising

5  
screen change detection means for detecting a change in display of the screen of said device to be operated, wherein

at a time when a change occurred in display of the screen is completed, said screen analysis means analyzes the current screen of said device to be operated.

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24. The remote operation system as set forth in claim 18, wherein

said device to be operated is an information

processing device having a GUI, and

5           said screen analysis means detects GUI widgets displayed on the screen of said device to be operated to obtain attribute data of said GUI widgets.

25.       The remote operation system as set forth in claim 24, wherein

5           the attribute data of said GUI widgets includes at least one of a kind of said GUI widgets, a name of said GUI widgets and a location of said GUI widgets in the screen.

26.       The remote operation system as set forth in claim 24, wherein

5           said conversion rule registration means has registration of rules for converting data of an analysis result obtained by said screen analysis means into a web page that can be displayed by a web browser,

              said screen information conversion means converts data of an analysis result obtained by said screen analysis means into a web page based on said rules,

10          said web page includes, for GUI widgets operable by a user among GUI widgets detected by said screen analysis means, a hyper-link corresponding to the GUI widgets in question, and

15          when said hyper-link is selected, data for identifying GUI widgets corresponding to the hyper-link

in question and data for identifying operation for the GUI widgets in question are transmitted to said operation execution means.

27. The remote operation system as set forth in claim 18, wherein

5           said conversion rule registration means has registration of rules for converting data of an analysis result obtained by said screen analysis means into a text of electronic mail.

28. The remote operation system as set forth in claim 27, wherein

5           said operation execution means receives electronic mail including information of user's operation conducted using said operation side terminal, analyzes the received electronic mail to identify the user's operation, and executes the operation in question.

29. The remote operation system as set forth in claim 18, wherein

5           data of an analysis result obtained by said screen analysis means is data of an XML format.

30. The remote operation system as set forth in claim 18, wherein

5           said operation side terminal is a portable

5 communication terminal having a character data transmission and reception function.

31. The remote operation system as set forth in claim 18, wherein

said communication network is the Internet.

32. The remote operation system as set forth in claim 18, wherein

5 said screen analysis means, when moving picture or still picture is displayed on the screen of said device to be operated, detects the display in question to extract picture data of the display in question, and

10 said screen information transmission means transmits said picture data extracted by said screen analysis means to said operation side terminal to display the data on said operation side terminal.

33. The remote operation system as set forth in claim 18, wherein

5 said screen analysis means, when moving picture or still picture is displayed on the screen of said device to be operated, detects the display in question to extract picture data of the display in question, and

10 said screen information conversion means converts said picture data extracted by said screen analysis means into data suitable for the transmission to said

10 operation side terminal or for displaying on the screen  
of said operation side terminal.

34. The remote operation system as set forth in claim  
22, wherein

device characteristics of said operation side  
terminal detected by said device characteristic  
5 detection means include at least one of an inherent ID  
of said operation side terminal, a kind of machine, a  
processing rate, a communication rate, communication  
costs per unit volume of data, communication costs per  
unit time, a data format that can be displayed on a  
screen, a playable sound data format, executable program  
and script formats, a volume of data receivable at one  
time, a color that can be displayed, a character font  
that can be displayed, a screen resolution, a physical  
length of a screen in a vertical direction and a lateral  
10 direction and the number of characters that can be  
displayed within one screen in the vertical direction  
and the lateral direction.

15 35. A remote operation method of remotely operating a  
device to be operated through a communication network  
from an operation side terminal, comprising the steps  
of:

5 a screen analysis step of analyzing information  
displayed on a screen of said device to be operated, and

screen information transmission step of  
transmitting data of an analysis result obtained by said  
screen analysis step to said operation side terminal to  
10 display the data on said operation side terminal.

36. The remote operation method as set forth in claim  
35, further comprising

an operation execution step of causing said  
device to be operated to execute predetermined  
5 processing corresponding to user's operation conducted  
using said operation side terminal.

37. The remote operation method as set forth in claim  
35, further comprising

a screen information conversion step of  
converting data of an analysis result obtained by said  
screen analysis step into data suitable for the  
transmission to said operation side terminal or for  
displaying on a screen of said operation side terminal,  
wherein

at said screen information transmission step,  
10 data of a result of conversion by said screen  
information conversion step is transmitted to said  
operation side terminal to display the data on said  
operation side terminal.

38. The remote operation method as set forth in claim

37, further comprising

a conversion rule registration step of  
registering rules for converting data of an analysis  
result obtained by said screen analysis step into data  
suitable for the transmission to said operation side  
terminal or for displaying on the screen of said  
operation side terminal, wherein

at said screen information conversion step, data  
of an analysis result obtained by said screen analysis  
step is converted based on the conversion rules  
registered at said conversion rule registration step.

39. The remote operation method as set forth in claim  
37, further comprising

a device characteristic detection step of  
detecting device characteristics of said operation side  
terminal, wherein

at said screen information conversion step, data  
of an analysis result obtained by said screen analysis  
step is converted based on device characteristics  
detected by said device characteristic detection step  
and conversion rules registered at said conversion rule  
registration step.

40. The remote operation method as set forth in claim  
35, further comprising

a screen change detection step of detecting a

change in display of the screen of said device to be  
5 operated, wherein

at a time when a change occurred in display of the screen is completed, the contents displayed on the current screen of said device to be operated are analyzed by said screen analysis step.

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41. The remote operation method as set forth in claim 35, wherein

said device to be operated is an information processing device having a GUI, and

5 at said screen analysis step, GUI widgets displayed on the screen of said device to be operated is detected to obtain attribute data of said GUI widgets.

42. The remote operation method as set forth in claim 41, wherein

the attribute data of said GUI widgets includes at least one of a kind of said GUI widgets, a name of 5 said GUI widgets and a location of said GUI widgets in the screen.

43. The remote operation method as set forth in claim 41, wherein

5 at said conversion rule registration step, rules are registered for converting data of an analysis result obtained by said screen analysis step into a web page

that can be displayed by a web browser,

at said screen information conversion step, data of an analysis result obtained by said screen analysis step is converted into a web page based on said rules,

10           said web page includes, for GUI widgets operable by a user among GUI widgets detected by said screen analysis step, a hyper-link corresponding to the GUI widgets in question, and

15           at said operation execution step, using data for identifying GUI widgets corresponding to the hyper-link in question and data for identifying operation for the GUI widgets in question which are transmitted when said hyper-link is selected, the operation side terminal is caused to execute predetermined processing.

20           44.       The remote operation method as set forth in claim 35, wherein

5           at said conversion rule registration step, rules are registered for converting data of an analysis result obtained by said screen analysis step into a text of electronic mail.

45.       The remote operation method as set forth in claim 35, wherein

5           at said screen analysis step, when moving picture or still picture is displayed on the screen of said device to be operated, the display in question is

detected to extract picture data of the display in question, and

at said screen information transmission step,  
said picture data extracted by said screen analysis step  
is transmitted to said operation side terminal to  
display the data on said operation side terminal.

10 46. The remote operation method as set forth in claim  
35, wherein

5 at said screen analysis step, when moving picture or still picture is displayed on the screen of said device to be operated, the display in question is detected to extract picture data of the display in question, and

10 at said screen information conversion step, said picture data extracted by said screen analysis step is converted into data suitable for the transmission to said operation side terminal or for displaying on the screen of said operation side terminal.

47. The remote operation method as set forth in claim  
39, wherein

5 device characteristics of said operation side terminal detected by said device characteristic detection step include at least one of an inherent ID of said operation side terminal, a kind of machine, a processing rate, a communication rate, communication

costs per unit volume of data, communication costs per  
unit time, a data format that can be displayed on a  
10 screen, a playable sound data format, executable program  
and script formats, a volume of data receivable at one  
time, a color that can be displayed, a character font  
that can be displayed, a screen resolution, a physical  
length of a screen in a vertical direction and a lateral  
15 direction and the number of characters that can be  
displayed within one screen in the vertical direction  
and the lateral direction.

48. A remote operation program for remotely operating  
a device to be operated through a communication network  
from an operation side terminal by controlling an  
information processing system, which causes execution  
5 of:

screen analysis processing of analyzing  
information displayed on a screen of said device to be  
operated, and

10 screen information transmission processing of  
transmitting data of an analysis result obtained by said  
screen analysis processing to said operation side  
terminal to display the data on said operation side  
terminal.

49. The remote operation program as set forth in  
claim 48, which causes execution of operation execution

5 processing of making said device to be operated conduct predetermined processing corresponding to user's operation conducted using said operation side terminal.

50. The remote operation program as set forth in claim 48, which causes screen information conversion processing of converting data of an analysis result obtained by said screen analysis processing into data suitable for the transmission to said operation side terminal or for displaying on a screen of said operation side terminal, and

10 in said screen information transmission processing, causes execution of processing of transmitting data of a conversion result obtained by said screen information conversion processing to said operation side terminal to display the data on said operation side terminal.

51. The remote operation program as set forth in claim 50, which causes execution of conversion rule registration processing of registering rules for converting data of an analysis result obtained by said screen analysis processing into data suitable for the transmission to said operation side terminal or for displaying on the screen of said operation side terminal, and

in said screen information conversion processing,

10 causes execution of processing of converting data of an analysis result obtained by said screen analysis processing based on the conversion rules registered by said conversion rule registration processing.

52. The remote operation program as set forth in claim 50, which causes execution of device characteristic detection processing of detecting device characteristics of said operation side terminal, and  
5 in said screen information conversion processing, causes execution of processing of converting data of an analysis result obtained by said screen analysis processing based on device characteristics detected by said device characteristic detection processing and conversion rules registered by said conversion rule registration processing.

10 53. The remote operation program as set forth in claim 48, which causes execution of:

screen change detection processing of detecting a change in display of the screen of said device to be operated, and

5 at a time when a change occurred in display of the screen is completed, processing of analyzing the contents displayed on the current screen of said device to be operated by said screen analysis processing.

54. The remote operation program as set forth in  
claim 48, wherein

said device to be operated is an information  
processing device having a GUI, and

5 in said screen analysis processing, the program  
causes execution of processing of detecting GUI widgets  
displayed on the screen of said device to be operated to  
obtain attribute data of said GUI widgets.

55. The remote operation program as set forth in  
claim 54, wherein

the attribute data of said GUI widgets includes  
at least one of a kind of said GUI widgets, a name of  
5 said GUI widgets and a location of said GUI widgets in  
the screen.

56. The remote operation program as set forth in  
claim 54, wherein

in said conversion rule registration processing,  
rules are registered for converting data of an analysis  
result obtained by said screen analysis processing into  
a web page that can be displayed by a web browser,

in said screen information conversion processing,  
data of an analysis result obtained by said screen  
analysis processing is converted into a web page based  
10 on said rules,

said web page includes, for GUI widgets operable

by a user among GUI widgets detected by said screen analysis processing, a hyper-link corresponding to the GUI widgets in question, and

15               in said operation execution processing, in order to cause the operation side terminal to execute said predetermined processing, data for identifying GUI widgets corresponding to the hyper-link in question and data for identifying operation for the GUI widgets in question transmitted when said hyper-link is selected.

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57.       The remote operation program as set forth in claim 48, which

5               in said conversion rule registration processing, causes execution of processing of registering rules for converting data of an analysis result obtained by said screen analysis processing into a text of electronic mail.

58.       The remote operation program as set forth in claim 48, which causes execution of:

5               in said screen analysis processing, when moving picture or still picture is displayed on the screen of said device to be operated, detecting the display in question to extract picture data of the display in question, and

              in said screen information transmission processing, processing of transmitting said picture data

10       extracted by said screen analysis processing to said  
operation side terminal to display the data on said  
operation side terminal.

59.      The remote operation program as set forth in  
claim 48, which

5        in said screen analysis processing, when moving  
picture or still picture is displayed on the screen of  
said device to be operated, detects the display in  
question to extract picture data of the display in  
question, and

10       in said screen information conversion processing,  
converts said picture data extracted by said screen  
analysis processing into data suitable for the  
transmission to said operation side terminal or for  
displaying on the screen of said operation side terminal.

60.      The remote operation program as set forth in  
claim 52, wherein

5        device characteristics of said operation side  
terminal detected by said device characteristic  
detection processing include at least one of an inherent  
ID of said operation side terminal, a kind of machine, a  
processing rate, a communication rate, communication  
costs per unit volume of data, communication costs per  
unit time, a data format that can be displayed on a  
10       screen, a playable sound data format, executable program

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and script formats, a volume of data receivable at one time, a color that can be displayed, a character font that can be displayed, a screen resolution, a physical length of a screen in a vertical direction and a lateral direction and the number of characters that can be displayed within one screen in the vertical direction and the lateral direction.